Dominion – Warren County Combined Cycle Project
DEQ Comments on Modeling Protocol (Revision II – March 2010)
March 23, 2010

Substantive Comments

- All emission rates and stack parameters are subject to DEQ regional office approval. Please contact Janardan Pandey to obtain the necessary approval.

- DEQ requests Dominion receive FLM approval of the Class I area modeling protocol prior to submitting modeling results.

- DEQ and Dominion will continue to have discussions on the regulatory requirement to conduct a 1-hour NO2 NAAQS modeling analysis. The protocol will be updated at a later date if such an analysis is warranted.

3.9 Startup/Shutdown Operations

- The protocol contains the following statement:

  "A startup modeling analysis will be performed only for those pollutants and averaging periods for which the startup/shutdown emissions are greater than the normal operation emissions."

  As previously discussed, stack parameters also affect ambient impacts. Therefore, even if SU/SD emissions are less than emissions during normal operation, this does not necessarily mean that SU/SD will have a lower ambient impact. Please model all pollutants in this exercise.

5.5 $PM_{2.5}$ NAAQS Compliance Analysis

- The protocol contains the following statement:

  "Our Tier 1 (conservative) approach for any cumulative modeling of $PM_{2.5}$ is to adopt a conservatively high 98th percentile daily monitored background concentration, averaged over the period of 2006-2008, from the nearby representative $PM_{2.5}$ monitor at Luray Caverns airport."

  This statement should be revised to say the following:

  "Our Tier 1 (conservative) approach for any cumulative modeling of $PM_{2.5}$ is to adopt a conservatively high daily monitored background concentration. The monitored background concentration used in the analysis will conform to the requirements in 40 CFR Part 51, Appendix W (Guideline on Air Quality Models).

Data from the nearby representative $PM_{2.5}$ monitor at Luray Caverns airport is proposed. The actual value used in the modeling is subject to DEQ approval."

Editorial Comments

Section 2.3.1.2 Mitsubishi M501GAC Turbines

- The annual VOC emission rate of 305.16 tons per year presented in Table 2-6 appears to be incorrect. Please make the necessary adjustments. The paragraph on page 2-12 beginning "Table 2-6 indicates that the proposed project is a major source…" may also need revision if VOC emissions are greater than the PSD major source threshold of 100 tons per year.

Section 2.3.1.3 GE 7FA05 Turbines

- If the annual VOC emission rate of 102.51 tons per year presented in Table 2-8 is correct, the paragraph on page 2-14 beginning "Table 2-8 indicates that the proposed project is a major source…" may also need revision if VOC emissions are greater than the PSD major source threshold of 100 tons per year.

Section 3.1 Background Discussion

- If the proposed facility is a major source of VOC emissions (see previous comments), the paragraph beginning "The proposed project will be a major source for CO, NO_2, $PM_{2.5}$, and PM_{10} for all the three turbine configurations as discussed in Section 2.3…" should be revised.

Section 3.3 Model Selection

- Based on the maximum hourly emission rates of SO_2, NO_X, PM_{10}, and H_2SO_4 for the Mitsubishi units from Table 2-5 and for the auxiliary boiler, inlet turbine chillers and fuel gas heater from Table 2-1, the screening distance for this scenario is:

  147.53 lbs/hr X 8760 hrs/yr X 1 ton/2000 lbs = 646.18 tons/yr

  646.18/10 = **64.62**

- The following first sentence of a paragraph on page 3-17 contains a typographical error:

  "Section 3.I of the IWAQM Phase 2 document (1998) describes this CALPUFF approach."

  The referenced section should be 3.1 and not 3.I.

Sulfur Deposition

- There is an extra “concentration” in the following sentence:

  “The annual sulfur deposition is then estimated by multiplying the modeled annual average concentration SO2 concentration (after scale-up) by a deposition velocity of 0.5 cm/sec.”

3.6.1 Class I Receptor Grid

- There is a typographical error in the following sentence:

  “Because of the proximity of the Class I Area to the proposed site, AERMOD will be used to access the impacts from the facility on Shenandoah National Park.”

  The word “assess” should be used instead of “access.”

3.7.2 Compliance with Class II Area Ambient Air Quality Standards and PSD Increments

- Table 3-15 contains footnotes (1), (2), and (3). However, text for each of these footnotes has either been not identified or provided. Please clarify.

3.9 Startup/Shutdown Operations

- Table 3-21 indicates 27 hours per year for the cold start operating mode. However, based on the estimated 6 cold starts per year and the startup/shutdown time duration for a cold start of 252 minutes as specified in Appendix F, the number of hours per year for the cold start operating mode would be 25.

5.1 Class I Area Air Quality Related Values

- The reference to Section 3.2 should be Section 3.3.